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DESTRUCTION OF MOSQUITOES.

Letter No. 1771-81, dated Calcutta, the 16th December 1901, from W. S. Marris, Esq., Under Secretary to the Government of India, Home Department, (Medical), to Local Governments and Administrations.

I am directed to forward..... copies of a letter, dated the 2nd October 1901 (and enclosures), addressed by Major R. Ross, Indian Medical Service (retired), to the Under Secretary of State for India, on the subject of the organization by private enterprise of agencies for the destruction of mosquitoes in India, and to request that (with the permission of the Governor in Council / H. H. the Lt. Govr. (and C. C.)) the papers may be circulated to Medical Officers serving in

2. I am to say that the Government of India would be glad to learn of the prosecution of organized effort on the lines indicated. In their opinion it is highly desirable that a knowledge of the now accepted fact that measures such as those described by Major Ross to a great extent ensure immunity from malarial fevers should be widely disseminated among the population. The Government of India, however, recognize that the sphere of operations must be restricted by practical considerations. The success of the suggested measures will depend largely on the qualities of the persons selected to carry them out. The practical conduct of the operations should be in the hands of persons who, not only have some knowledge of the theory on which they are based, but also bring to the experiment a due measure of enthusiasm and tact. The Government of India apprehend that while these qualifications can at first be looked for only in Commissioned Medical Officers, such officers may be unable to spare the time personally to supervise the work. Each Medical Officer, however, might, it is thought, act as a centre of instruction to his own subordinates and to Municipal officials; and in particular cases it may be found possible to spare Medical Subordinates for the special duty. But it is evident that a beginning must be made gradually, and the Government of India consider that to secure systematic and thorough operations in a few selected places would be better than to attempt to deal with areas too extended. Definite success in a few selected places would, it is hoped, bring home to the people the ease with which they can secure comparative immunity from malarial fevers, whereas the non-success of partial and discontinuous efforts would bring the remedy into disrepute.

3. With these remarks the Government of India leave it to the discretion of His Excellency in Council / H. H. the Lt. Governor and Chief Commissioner to decide to what extent and in what areas action should be taken; but they would be glad to learn of any success attained by measures of the kind which Major Ross advocates.

Letter dated Liverpool, the 2nd October 1901, to the Under Secretary of State for India, India Office, Whitehall, S. W., from Major Ronald Ross, F.R.C.S., D.Ph., F.R.S., I.M.S., (retired), Lecturer in Tropical Medicine, University College, Liverpool.

I have the honor to forward, for the information of the India Office, a copy of a letter on "Mosquito Brigades for India" addressed by me to the principal public journals in India. The letter recommends the appointment of Mosquito Brigades in towns by private enterprise.

I am sure that the Government of India will approve of the proposal and will assist such medical men as attempt to carry it out.

Where funds cannot be obtained by private enterprise in India, I will endeavour to supply money from an account at my disposal, given to me for the purpose by private persons.

MOSQUITO BRIGADES FOR INDIA.

To the Editor of the.....

The great interest taken in the subject of malaria and mosquitoes by medical men and other persons in India suggests the hope that the time has now arrived when some general measures can be commenced to limit the propagation of mosquitoes in Indian Cantonments, towns and plantations.

The operations now being conducted in West Africa by the Liverpool School of Tropical Medicine, cordially assisted by the Government of the various colonies on the coast, demonstrate not only the advantage of such measures but the best means of executing them.

In order materially to diminish the number of mosquitoes in any town or cantonment it is necessary only to organise a Mosquito Brigade in the following manner. The local Health Officer, or District Medical Officer, or other person interested in the subject, should at once engage the services of an intelligent headman and a sufficient staff of workmen, who will constitute the brigade. These should be first instructed how to find the larvæ of mosquitoes in vessels of water in the vicinity of houses, in pools of stagnant water on the ground, in garden, cisterns, drains, and so on. Native agents carefully selected, will be found quite capable of learning the work.

The brigade should now be at once employed in getting rid of all the collections of stagnant water in which mosquitoes breed within the area of operations. Empty tins and bottles, broken flower-pots, and unconsidered vessels of the kind, in most of which mosquitoes multiply during the rains, should be carefully collected from the compounds and back-yards of houses and dumped in an assigned spot. Tubs or vessels of water which cannot be dispensed with by occupants of houses should be periodically emptied or treated with kerosine oil once a week will suffice. Cisterns and wells which are in use and are found to contain larvæ should be treated with oil; others should, if possible, be closed or filled up. Shallow rain-water pools and slushy areas in which larvæ occur can generally be easily obliterated by means of a "scratch drain" and a few basket-loads of gravel; deeper pools, by rubbish collected from houses and covered with earth. If pools occur in the course of drains or gutters, the attention of the local Municipality should be called to the fact. The oil-can and especially the broom are most useful until more permanent work can be done. Small drying streams, which are often prolific sources of mosquitoes at the end of the rains, can be periodically cleared by a gang of coolies with brooms, especially after the last showers of the season; but for more permanent effects, hollows in rocks should be filled with concrete and rubble. The guiding principle is contained in three words, "no stagnant water."

Experience in Africa shows that these operations are not nearly so formidable as may at first sight appear. It is astonishing how much can be done even by a few men, when they are steadily employed. Thus it has been found in Sierra Leone that six men can clear fifty houses and remove ten cart-loads of broken bottles and empty tins daily.

As to ways and means; beyond the salaries of the men the cost is little, a few spades, brooms, pickaxes, and kegs of crude petroleum sufficing—at least under ordinary circumstances. The local Municipality and Public Works Department will generally give much assistance in the way of carts, implements and even labour. In my opinion, however, it is best not to wait for or depend solely upon Government aid, but at once to raise a local public subscription for the costs of the local brigade. In Africa the response has been so immediate and so generous that there is no doubt a Health Officer will be able to raise similar funds almost everywhere where Europeans reside. Even Rs. 50 a month will suffice to maintain a gang of five or six men, who will do much for any ordinary Indian Cantonment. It is emphatically my opinion that the campaign against mosquitoes in towns can best be commenced by private enterprise. At Lagos for instance, the merchants subscribed £ 150 a year at my first request; for Cape Coast Castle, a single gentleman has given £ 400 a year; while for Sierra Leone £ 2,000 was put down immediately by another philanthrophist.

A warning must be recorded against commencing operations over too large an area. It is best to begin in the immediate vicinity of the houses of Europeans and other subscribers. Experience shows that in the large majority of cases, where mosquitoes abound in a house, they are being bred close at hand. But in this matter, as well as in the question of the number of men to be employed, the Superintendent of the operations must be guided by local conditions, and, needless to say, nearly all medical men are now well enough acquainted with the subject to form his own plans. A beginning once made, the work will shape itself as it proceeds; and it will generally be found that as soon as the neighbouring breeding-places are carefully removed the winged insects will vanish as if by magic.

In order to prevent theft or imposition it is advisable to give a distinctive badge to every man employed.

No special legislation is required; and experience proves that the occupants of even the poorest houses willingly second the efforts made to rid them of these troublesome and dangerous pests.

In Military Cantonments, the Officer Commanding can generally be induced to give the assistance of fatigue parties of men.

Planters, who suffer so frequently from malaria both in purse and person, should at once request their Medical Officers to commence the operations required.

Seeing that mosquitoes are responsible for malaria, yellow fever, and elephantiasis, and are a source of great annoyance to all, there can be little doubt that before many years have passed pretty general efforts will be made to get rid of them in the principal centres of civilization in the tropics. It seems to me that the sooner these efforts are commenced the better.

In conclusion I should like to add that if any medical man who is desirous of employing a mosquito brigade in the town where he is stationed, but who finds after proper efforts that he cannot raise the necessary money, will represent the facts of the case to me, I shall probably be able to supply him with certain funds out of those placed at my disposal for this purpose by the Liverpool School of Tropical Medicine and by several private persons.

Believe me, &c.,

University College, Liverpool.

Sd. RONALD ROSS, F. R. C. S., D. Ph., F. R. S.,
MAJOR, I. M. S., (retired).